

The species of *Alcelaphus* may be thus tabulated:—

- a. Animal, including the inside of the ears and rump, uniform brown, with a few black hairs on the underside of the tuft of the tail. *A. bubalis* (the Bubale). North Africa.
- b. Animal, including the rump, pale brown above, separated from the pale beneath by a well-defined straight line on the sides; inside of ears white; end of tail black. *A. Lichtensteinii* (the Godonko). Eastern Africa (Peters's 'Mossambique').
- c. Animal brown; inside of ears, rump, and back of legs whitish.
- * Face, dorsal line, and outside of limbs brown, like the rest of the animal; end of tail black. Horns diverging. *A. tora* (the Tora). Abyssinia.
- ** Sides of the head, dorsal line, outside of limbs, and end of tail black. Horns thick, erect. *A. caama* (the Caama). South Africa.

The British Museum has a pair of horns sent by Mr. Fraser from Tunis, which Mr. Blyth has described and figured as *Boselaphus major* (P. Z. S. 1869, p. 53, f. A, 1 & 2); and he says it has black marks above the hoof: but I have never seen this animal in the perfect state; and the horns are very like those of the common Bubale.

On Rhopalorhynchus Kröyeri, a new Genus and Species of Pycnogonida. By JAMES WOOD-MASON, of Queen's College, Oxford.

Much difference of opinion has prevailed with regard to the systematic position of the Pycnogonida, as to whether they should be classed with the Crustacea or with the Arachnida. By one set of naturalists (including Johnston, Milne-Edwards, De Quatrefages, Kröyer, and Dana) they have been placed with the Crustacea; by another, including Latreille, Erichson, Gerstäcker, and Huxley—who separates them, as well as the Tardigrada and Pentastomida, from the typical Arachnida (spiders, mites, and ticks) as an aberrant order—with the Arachnida. Dr. Anton Dohrn*, who has recently studied the embryology of these animals, finds that they are in no way related to the Arachnida, that they resemble the Crustacea in having a naupliiform first developmental stage, but that from this point the course of development ceases to exhibit any thing in common with that of the Crustacea. Under these circumstances I have thought it better to call the *cheliceræ*, *palps*, and *accessory legs* (= mandibles and first and second pairs of maxillæ of Kröyer) of those who range the Pycnogonida with the Arachnida, *the first, second, and third pairs of cephalic appendages* respectively, thus avoiding the use of terms implying affinities and homologies that may not in reality exist.

RHOPALORHYNCHUS †, gen. nov., Wood-Mason.

Corpus lineare, gracillimum, annulis thoracis perdistinctis, cylin-

* Jenaische Zeitschrift, 1869.

† ῥόπαλον, clava; ῥύγχος, rostrum.

dricis, utrinque dilatatis, processibusque lateralibus magnis, obconicis. *Rostrum* uniarticulatum, elongatissimum (corporis longitudinem pæne æquans), clavatum, ore triradiato. *Annulus oculiger* in collum vix coarctatus. *Appendices cephalicæ primæ paris* absunt: *appendices cephalicæ secundæ paris* tenuissimæ, rostro longiores, novemarticulatæ, articulis secundo tertioque elongatis: *appendices cephalicæ tertii paris* paulo longiores, ex decem confectæ articulis—quorum quartus sextusque sunt elongatissimi, terminalesque quatuor prehensiles ac margine interiore serrati ciliatique—in utroque adsunt sexu; appendices utriusque paris, secundæ ad tertium, tertii ad quartum articulum, sunt geniculatæ. *Tuberculus oculiger* in postica annuli parte est situs. *Pedes gracillimi*, inermes, æquales, corpore (rostro incluso) duplo longiores, unguibus auxiliaribus armati sunt nullis. *Abdomen* uniarticulatum, obtuse conicum, perbreve, vix distinguendum.

♣
Rhopalorhynchus Kröyeri, n. sp.

Body linear, smooth. The rostrum is almost as long as the rest of the body, movably articulated to the middle of the anterior end of the oculigerous somite, slender and filiform nearly to its middle, whence it expands and finally narrows to its obtuse extremity; when examined in profile, the convex upper contour of the expanded portion is seen to carry two minute forwardly directed spines, the one behind the other in the middle line. The mouth is situated at the extremity of the rostrum and has the form of a triradiate slit, the three slits being so disposed that a circle described from the point in which they meet so as to pass through their free extremities would be by them divided into three equal sectors. The ocular tubercle is erect, occupies the posterior half of the segment on which it is placed, and has the form of a short cylinder surmounted by a minute cone, the eyes being situated partly on the cylinder and partly on the cone, at points corresponding, as usual, to the extremities of the arms of a St. Andrew's cross. A very distinct crescentic suture, bounding the base of the ocular tubercle posteriorly and curving forwards and outwards, so that (if produced far enough) it would pass out just in front of the first pair of legs, divides the oculigerous from the first thoracic somite.

The *cephalic appendages of the first pair* are absent. Those of the *second pair* are about once and two thirds as long as the rostrum, with which they lie in the same horizontal line, being articulated one on each side of it to the anterior end of the oculigerous somite, are filiform, excessively slender, and composed of nine joints: the first joint is subglobular, being nearly as broad as long, much broader than any of the succeeding joints; the second greatly elongated and slightly expanded at the apex; the third is very short and slightly curved; the fourth is greatly elongated, but not so much so as the second; the fifth is shorter than either of the four equal terminal joints, which, together with the fifth and the distal half of the fourth, are fringed with short and very delicate cilia. Those of the *third pair* are also extremely slender, are articulated, a little

posteriorly and internally to the second pair, to minute processes springing from the ventral arc of the oculigerous somite and meeting in the middle line: they are composed of ten joints, of which the first is minute, the two next equal and cylindrical; the fourth greatly elongated and just perceptibly expanded at the apical end; the fifth short, scarcely longer than the second of the two basal joints, and curved; the sixth is likewise greatly elongated, but more expanded at the apex and longer than the third; the four terminal joints are short, slightly decrease in length from the first to the last, which comes suddenly to a subacute incurved point forming a sort of claw, are curved, fringed on their inner and concave margins with cilia and minute spinules, and capable of being coiled tightly together so as to form a prehensile organ.

Both pairs of appendages are elbowed at a short joint intercalated between two long ones, viz. the second pair between the second and fourth, the third between the fourth and sixth joints.

In many other species the terminal joints of the third pair of cephalic appendages (*pedes accessori*) will probably be found to be similarly modified as a prehensile organ; an examination of O. F. Müller's faithful figures of *Nymphon grossipes*, Fabr., in the 'Zoologia Danica'* would, in fact, alone suffice to show the existence of such a modification in that species, even if Kröyer† had not described it in his diagnoses of the genera *Nymphon* and *Zetes*, without, however, offering any interpretation of the structure.

The *oculigerous somite* has its anterior margin straight, and is but faintly constricted in front of the eye-tubercle.

The *first thoracic somite*, if its distinctness from the oculigerous somite be admitted, is very short. Of the remaining somites the second and third are subequal, the former being, if any thing, the longer, are as perfectly cylindrical and nearly as long as, but slightly stouter than, the filiform proximal moiety of the rostrum, and are suddenly expanded at their articular ends, each somite presenting the appearance of a cylinder with a greatly truncated cone affixed by its truncated surface to each end. The fourth and last somite is scarce half the length of those that precede it, and is similarly expanded at its anterior end only. From the sides of the expansions at the posterior extremity of the second and third spring two somewhat inflated outwardly directed obconic processes, which might at first sight be mistaken for the first of the basal joints of the legs from their close similarity to these, but which are in reality one with the somite from which they arise; precisely similar processes carry the legs both of the first and of the last somite, in which, however, they diverge like the arms of the letter Y. Wedged in between the roots of these processes of the last somite and the posterior boundary of its ventral arc lies a minute obtusely conical tubercle with a large circular (anal) aperture at its extremity. This is the abdomen, a very evident, though rudimentary, structure in most Pyenogonida, and even biarticulate in one species (in *Zetes hispidus*, Kröyer); but

* *Op. cit.* pl. cxix, figs. 5 & 8.

† *Naturhist. Tidssk.* 1844, pp. 108 & 116.

here so reduced in size as to be quite invisible from above, and only demonstrable with difficulty from below, whence it appears in ordinary positions under the microscope as a convex ovoidal or heart-shaped plate; it, moreover, looks downwards and slightly backwards, instead of upwards and backwards or directly backwards, as it usually does.

The legs are long, slender, simple, equal in length, rather more than twice as long as the body (including the rostrum), and are composed of eight joints, terminated by a weak slightly curved claw. Their three basal joints are as broad as long, equal, and almost globular; the fourth is club-shaped at the distal end; the fifth is all but as long as the fourth, and, with the remaining joints, perfectly filiform; the sixth is shorter and about twice the length of the two last together; these are subequal.

	millims.
Length of the body (including the rostrum)	13
" " legs	26
" " second pair of cephalic appendages	10
" " third " " "	12

From the linear form of the body and the slenderness of the legs I conclude that my specimen is a male—a conclusion by no means invalidated by the presence of the third pair of cephalic appendages, which, being apparently invariably developed in both sexes throughout several genera (*Nymphon*, &c.), consequently possesses no value in the determination of questions of sex.

Hab. Dredged by the writer at Port Blair, Andaman Islands, in 25 fathoms of water, at which depth the bottom was clothed with a dense tangle of delicate filamentous algæ so closely resembling the animal in point of colour and form that the latter was with difficulty distinguishable.

In conclusion, I dedicate the first species of Pycnogonida hitherto discovered in these seas to the memory of the illustrious Danish naturalist whose name is so indissolubly connected with the history both of the Pycnogonida and of the lower Crustacea.—*Journal of the Asiatic Society of Bengal*, vol. xlii. part 2 (1873).

On the Development of Distomum nodulosum. By O. von LINSTOW.

The author has ascertained that *Distomum nodulosum* is not produced from the *Cercaria Planorbis carinati* as supposed by De Filippi, but from another form which was not previously known.

To follow the migrations of this worm the author put individuals full of ova into a vase containing freshwater mollusca (*Lymneus*, *Paludina*, *Planorbis*, *Valvata*, &c.). The *Distoma* were soon decomposed and their ova were set free. The first embryos were hatched in two or three days; they swam about rapidly by means of their vibratile covering. It was in the alimentary canal of certain Chaetopod Annelids by which they had been swallowed that M. von Linstow was best able to follow the first transformations of these larvæ; they had lost their cilia, and there was clearly to be